DOCUMENT RESUME

ED 097 121 PS 007 495

AUTHOR Benson, Gerald P.; Kuipers, Judith L.
TITLE Personality Correlates of Intellectual Performance Among Head Start Children.
PUB DATE [74]
NOTE 16p.

EDRS PRICE MF-$0.75 HC-$1.50 PLUS POSTAGE
DESCRIPTORS Anglo Americans; Behavior Patterns; Behavior Rating Scales; Educational Objectives; Hostility; *Individual Characteristics; *Intellectual Development; *Intelligence Quotient; Mexican Americans; Peer Acceptance; Personal Adjustment; *Personality Studies; *Preschool Children; Preschool Tests; Task Performance
IDENTIFIERS Extraversion Introversion; *Project Head Start

ABSTRACT

This study investigated the association between personality traits and the intellectual performance of Head Start children. A total of 90 economically disadvantaged Anglo and Mexican American Children from six Head Start classrooms were administered the Preschool Inventory (PSI) to obtain a measure of intellectual development. Each child was also independently rated on the Classroom Behavior Scales by a college student and teacher. It was hypothesized that: (1) scores on the PSI would correlate positively with ratings on extraversion, task orientation, general adjustment, and peer adjustment; (2) PSI scores would correlate negatively with ratings on introversion and distractibility; and (3) no correlation would exist between ratings on either hostility and/or consideration of others and the PSI. Results confirmed each of these hypotheses. The results are in accord with current developmental theories which view the child as an active seeker of cognitive stimulation who interacts on his environment. Implications of the study suggest that preschool curriculum experiences should require self-initiating, exploratory, persistent, and independent activity on the part of the child. (Author/SDH)

ED 097121

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

PERSONALITY CORRELATES OF INTELLECTUAL PERFORMANCE AMONG HEAD START CHILDREN

Gerald P. Benson
Psychology

Judith L. Kuipers
Child Development

PS 007495

In searching for correlates of intellectual changes in children, researchers consistently find certain personality traits associated with gains in IQ scores. These traits are associated with the personality dimensions of extroversion and introversion, task-orientation and distractability and adjustment. The children who gain in IQ score are characterized as independent, aggressive in conversation, persistent with difficult tasks, enjoyment of intellectual activities, self-initiating and curious.

If intellectual development is associated with personality traits, then this association should be found among Head Start children. To test this, 90 Head Start children were administered the Preschool Inventory (PSI) to obtain a measure of intellectual development. Each child was independently rated on the Classroom Behavior Scales by a College student and teacher. We hypothesized that scores on the Preschool Inventory would correlate positively with ratings on extroversion, task-orientation, general adjustment and peer adjustment. In addition it was hypothesized that the PSI scores would correlate negatively with ratings on introversion and distractibility. Lastly it was hypothesized that there would be no correlation between ratings on either hostility and/or considerateness of others and the PSI.

Results of the study confirmed each of the hypotheses. Cognitive development as measured by the Preschool Inventory correlated positively with ratings of extroversion, task-orientation, general adjustment and peer adjustment. This was true for both boys and girls, Anglo and Chicano children and Title I and

low income children. Scores on the PSI correlated negatively with ratings of introversion and distractability across all subgroups. Correlation between the PSI scores and ratings on hostility and consideration for others approached zero.

Personality Correlates and Intellectual Performance of Head Start Children

Gerald P. Benson
Psychology

Judith L. Kuipers
Child Development

Colorado State University

Longitudinal studies of children have forced psychologists to revise their conceptions of I.Q. constancy. Even children who remain in relatively similar environments over the years often show substantial changes in I.Q. In the Fels Research study (Sontag, Baker and Nelson, 1958) 140 children were tested every year from ages two to twelve. While half these children showed little change in I.Q., the other half revealed increases or decreases that in some cases were surprisingly large. The most dramatic change was from an I.Q. of 118 at age 3 to 176 at age 11. Additionally, Bayley (1964) reported that during the ages 6 to 18 years, 60 percent of the subjects changed 15 or more I.Q. points. Ten percent changed 30 or more I.Q. points. Moreover, McCall (1973) in summarizing the results of I.Q. changes, reports that one child in three displayed a progressive change of more than 30 points and one in seven shifted more than 40 points. In rare instances children changed 74 points.

These studies suggest that increases in I.Q. scores are common among normal, middle-class children. The changes cannot be explained as random fluctuations due to errors of measurement or as the results of practice efforts. Instead they appear to be progressive and linear increases in I.Q. over time. In addition, some children, especially those from low-income families, reflect declining I.Q. scores over time.

In searching for correlates of these intellectual changes in children, researchers consistently find certain personality traits associated with gains

in I.Q. These traits are associated with the personality factors of extraversion vs. introversion and task orientation vs. distractibility and with measures of adjustment. The Fels study (Sontag, 1958) reported that children who increased in I.Q. as compared with those who lost were rated as intellectually curious, more independent, more self-initiating, more competitive, more verbally aggressive, harder working in school, and were twice as likely to be boys. Traits typically associated with masculinity appear to be related to intellectual gains.

McCall et. al., (1973) reported that those who were more likely to gain in I.Q. were boys, and girls, if they were more tomboyish or masculine in the traditional sense. As preschoolers, children who gain in I.Q. were independent and competitive in a social context. As school age children they were scholastically competitive, self-initiating and problem solving. Bayley (1964) reported that social facility and extraversion were related to high test scores for both sexes during childhood and adolescence.

Honzik, (1948) in an analysis of the longitudinal test records of 252 children reported that the greatest I.Q. fluctuations were those of children whose life experiences alternated between disturbing and satisfying periods. Moore (1968) also reported a positive correlation between general intellectual development and emotional atmosphere in the home and general adjustment of the child. However, the Fels Study (1958) reported no relationship between the pattern of I.Q. change and the degree of friendliness with age mates.

These studies indicate a relationship between intellectual performance and personality adjustment. Children who gained in I.Q. were extroverted, interested in intellectual problems, persistent in their effort to master intellectual tasks and evidenced positive adjustment.

Based on the preceding review of literature which reveals an association

between increases in I.Q. and personality dimensions, the following predictions were made:

1. Children's scores on the Preschool Inventory will correlate positively with teacher ratings and college student ratings of children on the personality dimensions of extraversion, task orientation, and adjustment.
2. Children's scores on the Preschool Inventory will correlate negatively with teacher ratings and college student ratings on the personality dimensions of distractibility and introversion.
3. Children's scores on the Preschool Inventory will not correlate with teacher ratings and college student ratings on personality dimensions of hostility and considerateness.

Procedure

Ninety children attended 6 Head Start classrooms during the fall of 1973. The children were economically disadvantaged Anglo and Mexican American children. They were observed, interviewed and rated by upper division majors in Child Development and Psychology. The college students were trained to administer the Preschool Inventory (PSI), (Caldwell 1970), and the Test of Basic Experience (TOBE) (Moss 1970), and to observe and rate the children on the Classroom Behavior Inventory (CBI) (Schaefer and Aaronson 1972). In addition each classroom teacher independently rated the children in her classroom on the CBI.

The Preschool Inventory is a test of general information which taps the child's knowledge of colors, shapes, size relationships, simple numbers, social roles, simple concepts and the ability to follow directions. It is appropriate for preschool children and emphasizes learnings related to

preschool activity. There are 64 items in the test. The raw score on this test was used as the measure of cognitive development.

The Math and Sciences booklets of the TOBE were used as an additional measure of cognitive development. The Math Test attempts to measure a child's mastery of fundamental mathematical concepts, the terms associated with them and his ability to see relationships between objects and quantitative terms such as the biggest piece of cake, the oldest boy and the most marbles. The Science Test is designed to measure the effect of the child's early scientific observations and the extent of his experiences with animals, humans, plants, machinery, weather and other phenomena. Each test is composed of 28 items. The items are composed of 4 pictures and the child points to the picture which illustrates the correct response. These two tests were used to substantiate the validity of the PSI and as a check on the training of the college students.

Further, an analysis was made to determine the concurrent validity coefficient between the PSI and TOBE.

The classroom Behavior Inventory was used to collect personality ratings on each child. This rating scale was developed by factor analysis and item analysis of several preliminary rating scales over a number of years. Three bipolar factors have been identified: Extraversion vs. Introversion, Task-Oriented vs. Distractibility, and Considerateness vs. Hostility. Each factor is assessed by having the teacher rate the child on six specific behaviors. Each factor is assessed by having the teacher rate whether the behavior is very much like, somewhat like, very little like, or not at all like that of the child's. The weighted value of the rating varies from 4 to 1 on each behavior scale. There are three behaviors describing each bipolar trait. Therefore, the sum of each child's rating for each of the six bipolar traits varied from 3 to 12. This value was correlated with the child's

raw score on the Preschool Inventory. The children were grouped by sex (boy/girl), ethnicity (Anglo/Mexican American), and family incomes (Title I/OEO), and correlations between CBI ratings and PSI scores were calculated for each of these 6 subgroups. Two sets of correlations were computed, one for the teacher ratings, and one for student ratings on the CBI.

Results

These correlations substantiate the validity of the PSI as a measure of intellectual development. In addition, the procedures used in training the college students to administer tests were substantiated by the concurrent validity coefficients.

Significant correlations (>.01) were obtained across all 6 subgroups for the PSI and both TOBE measures.

(Insert Table 1 About Here)

The teacher ratings of the children on extraversion, general adjustment, and peer adjustment were all correlated positively with the PSI scores. (See Table 2) Three of the seven correlations between teacher ratings on task orientation and PSI scores were not significant at the .05 level. In all, 25 of the 28 positively predicted correlations were significant and in the direction predicted. The cognitive development of Head Start children was associated with teacher ratings of extraversion, task-oriented, general adjustment and peer adjustment. The first hypothesis was supported. Children's scores on the Preschool Inventory will correlate positively with teacher ratings of children on the personality dimensions of extraversion, task orientation, and adjustment.

(Insert Table 2 About Here)

Teacher ratings of the children on introversion correlated negatively with scores on the PSI but only two of the seven were significant at the .05 level. All seven correlations between the PSI scores and teacher ratings on distractibility were negative and signficant at the .05 level or above. All 14 correlations were negative as predicted and 9 of the 14 were significant. The second hypothesis was supported. Children's scores on the Preschool Inventory will correlate negatively with teacher ratings on the Personality dimensions of distractibility and introversion.

The 7 correlations between teacher ratings of hostility and PSI scores were negative and low. Only two were significant at the .05 level. All 7 correlations between teacher ratings of considerateness were positive but none were significant. The prediction made in hypothesis 3 that children's ratings on the personality traits of hostility or considerateness would not be correlated with cognitive development was supported.

Correlations between student ratings of the children and their test scores replicated findings reported on the teacher ratings. (See Table 3)

The student ratings of the children on extraversion, task-orientation, general adjustment and peer adjustment were all significantly and positively correlated with the children's scores on PSI.

(Insert Table 3 About Here)

Student ratings of the children on introversion correlated negatively with scores on its PSI, but only 4 of the 7 were significant at the .05 level. All seven correlations between the student ratings on distractibility were negative and significant at the .05 level or above.

The 7 correlations between student ratings of hostility and the PSI scores of the children were negative and not significant. Likewise all 7

correlations between the student ratings on consideratness were positive but none were significant.

Discussion

Results of the study indicate that by age 4 there is already a significant relationship between the cognitive development of children and personality dimensions. Children who were rated as spontaneous, expressive, self-initiating, attentive, observant and persistent were advanced in cognitive development. In contrast, children who were rated as uncertain in social interaction, anxious, withdrawn, distractible, inattentive and preoccupied scored low on the PSI. Children rated as well-adjusted or as having high acceptance among peers scored high on the PSI. No relationship was found between cognitive development and the ratings on behavioral aspects of hostility or considerateness. All of these findings were consistent for both teacher and college student ratings across the subgroups of sex, ethnicity and economic status. This suggests that the change in I.Q. scores over time are independent of sex, ethnic group and economic status at 4 years of age. The results are in agreement with the findings of longitudinal studies that intellectual gains over time are associated with personality dimensions.

Results of that study are also in accord with current developmental theories (Bruner, 1973; Keesen, 1963; Piaget, 1964) which view the child as a complex, competent organism. An active seeker of cognitive stimulation, the child acts on his environment, and in turn, is acted upon. Through this process he develops more elaborated and balanced ways of dealing with discrepancy, conflict and dis-equilibrium in the environment. Duckworth (1964) states that Piaget's findings lead him to conclude that an individual's intellectual development is a process of equilibration, where the individual himself

is the active motor and coordinator of his own development. White (1959) advanced a theory of motivation which may account for the child's tendency to put his capacities to use. His term effectance motivation means to "effect an act" or to act and implies a basic, intrinsic need to interact effectively with the environment, independent of reinforcement from others. This motive is closely tied to the child's developing sense of self and basic to the development of competence as a personality trait. The child is motivated to learn new skills and behaviors which are typical of children who increase in I.Q. scores over time.

The results of this study are consistent with theoretical views of the child as trying to make sense of his world by actively dealing with objects and people. This view of the child places him in greater control of his own development. He must through his own efforts construct his knowledge of his world. And critical to this process is some type of feedback that informs the child of the effects of his actions. The results of this investigation indicate that the child who is outgoing, self-initiating and persistent sets himself up for the kinds of experiences that provide continuous experimentation and feedback leading to an increase in intellectual competence.

Complimentary and consistent interpretation of the existing correlation between cognitive scores and the personality variables of extroversion and adjustment is that children who are well-adjusted in the interview setting are able to concentrate effectively on the testing tasks and thereby obtain the correct answers more frequently than children who are shy and ill at ease in the testing situation.

Implications

Based on the findings of this study we propose that the goal of education and teaching in Head Start be to create situations where children have the

possibilities of acting on objects and people in ways that permit them to invent, construct and discover relations that lead to those organized structures of knowledge basic to effective problem solving. More specifically this implies curriculum experiences that require self-initiating, exploratory, persistent and independent activity on the part of the child.

While further research is needed to more clearly define the kinds of adult responses that elicit these qualities in children the work of Crandall (1963) and Winterbottom (1958) are relevant. They reported that mothers of high achievers expected self-reliant and independent behaviors from their children at early ages and gave them frequent and substantial, non-material, rewards for independent accomplishment.

The fact that our results were independent of sex, ethnicity and economic status suggests that a major thrust of Head Start should be upon developing ways of responding to both boys and girls, minority and majority, rich and poor to maximize independence, persistence and intellectual curiosity.

B I B L I O G R A P H Y

Bayley, N., and Schaefer, E.S. Correlations of maternal and child behaviors with the development of mental abilities: data from the Berkeley Growth Study. Monographs of the Society for Research in Child Development, 1964, (6 aerial no. 97).

Bruner, J.S. Orgainzation of early skilled action. Child Development, 1973, 44, 1-11.

Caldwell, Bettye M. The Preschool Inventory. (Revised Edition) Princeton, New Jersey: Educational Testing Service, 1970.

Crandell, V.V. Achievement. In H.W. Stevenson (Ed), Child Psychology. 62nd Yearbook National Society for the Study of Education. Chicago: University of Chicago Press, 1963.

Duckworth, E. Piaget rediscovered. In Ripple, R.E. and Rockcastle, V.N. (Eds) A Report on the Conference on Cognitive Studies and Curriculum Development. Ithaca, New York: Cornell University, 1964.

Honzik, M.P.; Macfarlane, J.W. and Allen, L. The stability of mental test performance between two and eighteen years. Journal of Experimental Education. 1948, 18, 309-324.

Kagan, J., Sontag, L.W., Baker, C.T., and Nelson, V.L. Personality and I.Q. change. J. Abnormal and Social Psychology. 1958, 56, 261-266.

Kessen, William. Research in the psychological development of infants: an overview. Merrill-Palmer Quarterly, 1963, 9, 83-94.

McCall, Robert B.; Appelbaum, Mark I.; and Hogarty, Pamela S. Developmental changes in mental performance. Monographs of the Society for Research in Child Development, 1973, 38, (3, Serial No. 150).

Moore T. Language and intelligence: A longitudinal study of the first eight-years, II: Environmental correlates of mental growth. Human Development, 1968, 11, 1-24.

Moss, Margaret, H. Tests of Basic Experiences, (Level K). Monterey, California: CTB/McGraw Hill, 1970.

Piaget, J. The Construction of Reality in the Child. New York: Basic Books, 1964.

Schaefer, E.S. and Aaronson, Moy. Classroom Behavior Inventory. Mimeographed copy. 1972.

Sontag, L.W.; Baker, C.T.; and Nelson, V.L. Mental growth and personality development: a longitudinal study. Monographs of the Society for Research in Child Development. 1958, 23 (2 Serial No. 68).

White, R. Motivation reconsidered: the concept of competence. Psychological Review, 1959, 66, 297-333.

Winterbottom, M.R. The relation of need for achievement to learning experiences in independence and mastery. In J.W. Atkinson (Ed), Motives in Fantasy, Action, and Society. Princeton, New Jersey.; VonNostrand, 1958, 450-478.

Table 1

Correlations Between the PSI Scores of Head Start Children and Their Scores on the TOBE (Math and Science)

Group	Tests of Basic Math		Experience Science	
	N	R*	N	R*
Head Start	78	.63	78	.57
Males	44	.60	44	.59
Females	34	.66	34	.56
Anglo	36	.70	36	.61
Chicano	42	.58	42	.54
Title I	40	.67	40	.62
OEO	38	.59	38	.51

*all correlations significant at .01 level.

Table 2

Correlations Between PSI Scores and Personality Ratings by the Teacher on the CBI

	Classroom Behavior Inventory Scales								
Head Start Group	Number of subjects	Extroversion	Task-Orientation	Introversion	Distractibility	Hostility	Consideration for others	Several Adjustment	Peer Adjustment
Total Group	82	.36	.27	-.23	-.39	-.27	.19*	.46	.55
Boys	47	.41	.19*	-.17*	-.39	-.24*	.14*	.38	.52
Girls	35	.33	.42	-.32*	-.40	-.29*	.26*	.55	.57
Angloes	37	.41	.19*	-.24*	-.49	-.21*	.27*	.49	.62
Chicanos	45	.35	.40	-.24	-.31	-.28*	.11*	.47	.49
Title I	43	.35	.20*	-.25*	-.42	-.22*	.15*	.39	.53
OEO	39	.35	.34	-.23*	-.36	-.32*	.22*	.54	.55

*All correlations are significant at the .05 level except those indicated with an asterik(*).

Table 3

Correlations Between PSI Scores and Personality Ratings by College Students on the CBI

Head Start Group	Number of subjects	Classroom Behavior Inventory Scales: Extroversion	Task-Orientation	Introversion	Distractibility	Hostility	Consideration for others	Several Adjustment	Peer Adjustment
Total Group	82	.47	.43	-.35	-.52	-.09*	.15*	.48	.51
Boys	47	.36	.46	-.19*	-.58	.00*	.10*	.51	.39
Girls	35	.61	.39	-.52	-.45	-.19*	.20*	.45	.64
Angloes	37	.35	.42	-.24*	-.51	-.13*	.18*	.55	.41
Chicanos	45	.61	.47	-.52	-.55	.05*	.11*	.48	.64
Title I	43	.44	.52	-.28*	-.53	-.12*	.19*	.60	.53
OEO	39	.49	.31	-.42	-.52	-.06*	.14*	.37	.55

*All correlations are significant at the .05 level except those indicated with an asterik(*).